SoftServe

Empowering your Business through Software Development

Module 2: Functions in JavaScript

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Agenda

- Functions in JS [1]
- Input and Output [2]
- JS Code Processing [3]
- Declaration and Expression [4]

Functions in JS

Basic Information

In mathematics:

Function is a relation between a set of inputs and a set of permissible outputs. [1]

$y = f(x)$ [2]

In classical programming

Function is a named part of a code that performs a distinct service. [3]

Example

```
var i, base, power, result;          [1]

base = 2; power = 2; result = 1;     [2]

for(i = 0; i < power; i++) {
    result *= base;                  [3]
}
console.log(result);    [4]

base = 3; power = 4; result = 1;

for(i = 0; i < power; i++) {
    result *= base;                  [5]
}
console.log(result);
```

Declaration of function

function is a special keyword for creation of function in JavaScript. [1]

```
function name () {
    body;
}
```
[2]

Example

```
var i, base, power, result;

base = 2; power = 2; result = 1;

for(i = 0; i < power; i++) {
    result *= base;
}
console.log(result);

base = 3; power = 4; result = 1;

for(i = 0; i < power; i++) {
    result *= base;
}
console.log(result);
```

Example

```
function pow () {
    result = 1;
    for (i = 0; i < power; i++) {
        result *= base;
    }
}
```

Function call

Call – operation for execution of function. [1]

( ) – operator for this action. [2]

Usually function can be **called** by name. [3]

Example

```
var i, base, power, result;

base = 2; power = 2;
pow();
console.log(result);

base = 3; power = 4;
pow();
console.log(result);

function pow () {
    result = 1;
    for(i = 0; i < power; i++) {
        result *= base;
    }
}
```

Input and Output

Input and Output

```
function name (a, b) {
    return a + b;
}
```

[1]

* you can return one value only [2]
* **return** always interrupts the execution.
* place your **return** at the end of a function [3]

[3]

Example

```
function pow () {
    result = 1;
    for (i = 0, I < power; i++) {
        result *= base;
    }
}
```

Example

```
function pow (base, power) {
    var result = 1;
    for (i = 0, I < power; i++) {
        result *= base;
    }
    return result;
}
```

Example

```
var i, out;

out = pow(2, 2);
console.log(out);

out = pow(3, 4);
console.log(out);

function pow (base, power) {
   var result = 1;
   for(i = 0; i < power; i++) {
       result *= base;
   }
   return result;
}
```

JS Code Processing

Code processing

```
var a = 10;
test();
function test () {
    a = 30;
    var b = 40;
}
var b = 20;
console.log(a, b);
```

Code processing

```
var a = 10;
test();
1.  function test () {
        a = 30;
        var b = 40;
    }
var b = 20;
console.log(a, b);
```

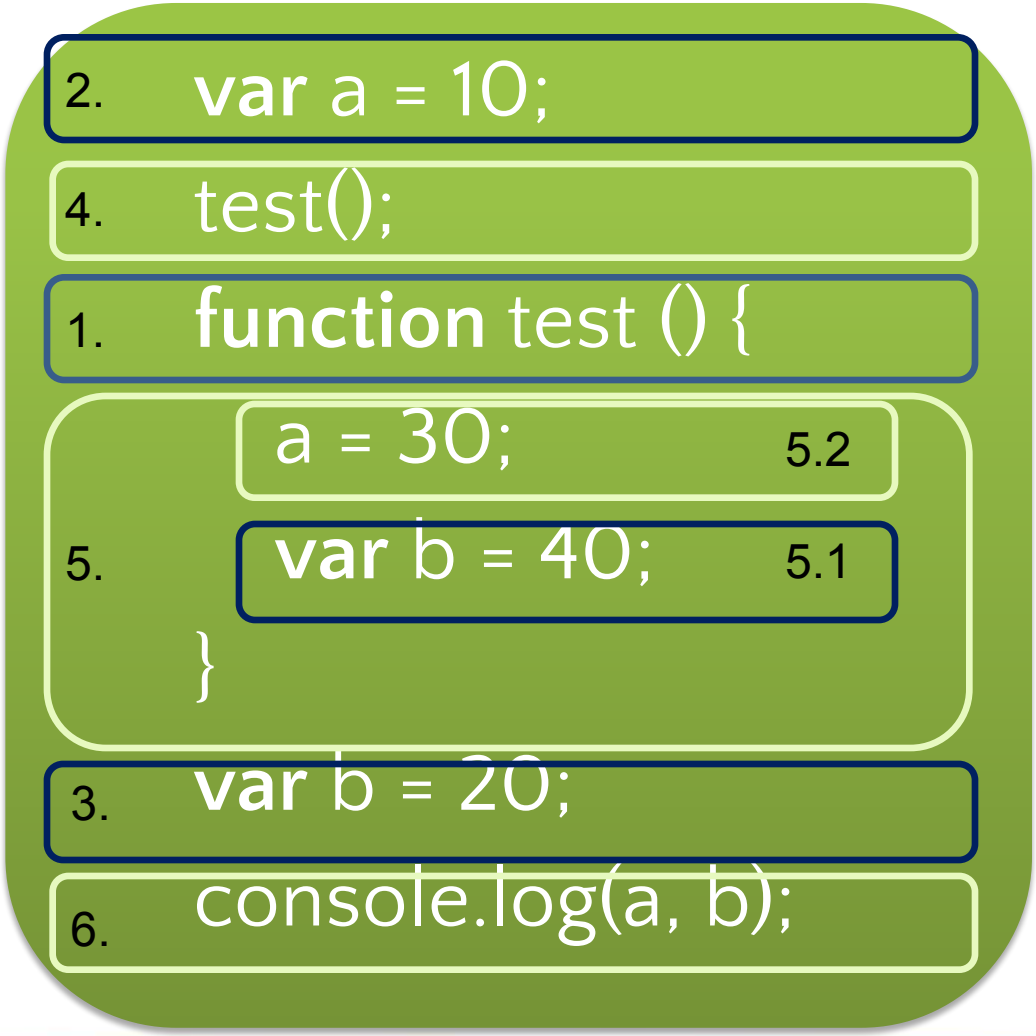
Code processing

```
2.  var a = 10;
    test();
1.  function test () {
        a = 30;
        var b = 40;
    }
3.  var b = 20;
    console.log(a, b);
```

Code processing

```
2.  var a = 10;
4.  test();
1.  function test () {
        a = 30;
5.      var b = 40;
    }
3.  var b = 20;
6.  console.log(a, b);
```

Code processing



Declaration and Expression

Declaration and Expression

```
function name () {
    body;
}
```

[1]

```
var name = function () {
    body;
};
```

[2]

Additional Facts About Functions

Functions in JavaScript are Objects. [1]

As a result, functions are accessible by reference. [2]

Functions can be used as a parameter in other function. [3]

References to functions can be saved in any other variable. [4]


THANK
YOU